STATEMENT OF BASIS

Title V Air Quality Permit Renewal

Rocky Mountain Pipeline
Rapid City, South Dakota

South Dakota Department of Environment and Natural Resources

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1.0 Background

On December 8, 1998, Kaneb Pipe Line Operating Partnership, L.P. (Kaneb) was issued a Title V air quality permit (28.9901-02) for its bulk petroleum marketing terminal in Rapid City, South Dakota.

On July 13, 2006, an administrative amendment was issued to change the facility's name to Rocky Mountain Pipeline System, LLC. The mailing address and contact person were also updated.

On May 4, 2007, Rocky Mountain Pipeline System's Title V air quality permit was renewed.

On October 10, 2008, DENR amended Rocky Mountain Pipeline System's existing Title V air quality permit to allow the storage of gasoline or ethanol in Tank 12-1, the installation of an underground storage tank, and the construction of a truck unloading pad and associated metering equipment.

There have been no complaints or violations filed against this facility in the last five years.

2.0 Operational Description

Rocky Mountain Pipeline System is a refined petroleum pipeline terminal and is a major source of volatile organic compound (VOC) emissions stemming from truck loading and storage tank losses. The facility handles refined petroleum products, including, unleaded regular gasoline, unleaded premium gasoline, #1 fuel oil, #2 fuel oil, diesel fuel, and interface. The terminal receives the petroleum liquids through a pipeline network. The Primary Standard Industrial Classification (SIC) Code is 4613.

2.1 Existing Equipment

Table 2-1 provides a description of the currently permitted equipment at Rocky Mountain Pipeline System's facility in Rapid City derived from its permit issued October 10, 2008.

Table 2-1 – Permitted Units

Unit	Description	Maximum Capacity	Control Equipment
#1	A submerged-fill truck loading rack to load product into trucks.	Not applicable	Vapor combustor
	John Zink vapor combustor fired with natural gas	52 million Btus per hour	
#2	Tank 10-53 - 1962 aboveground external floating roof storage tank	424,620 gallons	Not applicable
#3	Tank 10-54 - 1962 aboveground external floating roof storage tank	424,620 gallons	Not applicable
#4	Tank 11-1 - 1962 aboveground fixed roof storage tank	475,860 gallons	Not applicable
#5	Tank 12-1 - 1989 aboveground internal floating roof storage tank	510,468 gallons	Not applicable

Unit	Description	Maximum Capacity	Control Equipment
#6	Tank 14-1 – 1962 ground external floating roof storage tank	581,580 gallons	Not applicable
#7	Tank 17-1 - 1962 aboveground fixed roof storage tank	705,180 gallons	Not applicable
#8	Tank 20-27 - 1962 aboveground fixed roof storage tank	845,880 gallons	Not applicable
#9	Tank 24-1 - 1962 ground external floating roof storage tank	1,015,140 gallons	Not applicable
#10	Tank 24-2 - 1962 ground external floating roof storage tank	1,015,140 gallons	Not applicable
#11	Tank 24-3 - 1968 ground fixed roof storage tank	1,015,140 gallons	Not applicable
#12	Tank 33-1 - 1962 ground external floating roof storage tank	1,381,800 gallons	Not applicable
#13	Tank 33-2 - 1969 ground internal floating roof storage tank	1,381,842 gallons	Not applicable
#14	Tank 33-3 - 1969 ground internal floating roof storage tank	1,381,842 gallons	Not applicable
#15	Tank 5-22 – 2007 aboveground internal floating roof storage tank	211,512 gallons	Not applicable

2.2 Renewal and Proposed Changes

On October 27, 2011, Rocky Mountain Pipeline System submitted an application to renew its Title V air quality operating permit. Rocky Mountain Pipeline System requested that Tank #5-22 be removed from the permit – the tank was approved to be constructed, but Rocky Mountain Pipeline System stated they do not plan to construct the tank. Rocky Mountain Pipeline System's also included a form for an existing emergency generator in the application.

DENR will evaluate the changes proposed in the application for the above criteria in order to make the necessary permit amendments. The application was considered complete on January 10, 2012.

3.0 New Source Performance Standards

DENR reviewed the New Source Performance Standards in 40 CFR Part 60 and determined the following may be applicable to this facility.

3.1 Standards Applicable to Storage Tanks

There are three New Source Performance Standards for storage vessels. The three standards are applicable to the following storage vessels:

1. 40 CFR Part 60, Subpart K: applicable to storage vessels for petroleum liquids capable of storing greater than 40,000 gallons and commenced construction after June 11, 1973 but prior to May 19, 1978;
2. 40 CFR Part 60, Subpart Ka: applicable to storage vessels for petroleum liquids capable of storing greater than 40,000 gallons and commenced construction after May 18, 1978; and
3. 40 CFR Part 60, Subpart Kb: applicable to storage vessels for volatile organic liquids capable of storing 75 cubic meters (approximately 19,813 gallons) or greater and commenced construction after July 23, 1984.

Tank 10-53, 10-54, 11-1, 14-1, 17-1, 20-27, 24-1, 24-2, 24-3, 33-1, 33-2, and 33-3 were constructed prior to June 11, 1973 and are not subject to the three standards listed above.

Tank 12-1 was constructed in 1989, has a storage capacity of 510,468 gallons (1,932 cubic meters), and is in gasoline service. Gasoline has a vapor pressure of 40 kilopascals. Therefore, 40 CFR Part 60 Subpart Kb is applicable to storage Tank 12-1. Rocky Mountain Pipeline System installed an internal floating roof that meets the requirements listed in 40 CFR § 60.112(b)(a)(1)(i). Because an internal floating roof has been installed, only the requirements in Subpart Kb regarding an internal floating roof will be included in the draft permit.

As stated earlier, Rocky Mountain Pipeline System requested that Tank 5-22 be removed from the permit because it was never constructed.

3.2 ARSD 74:36:07:23 – 40 CFR Part 60, Subpart XX

DENR reviewed the standards of performance for Bulk Gasoline Terminals to determine if it is applicable to Rocky Mountain Pipeline System's operation. Subpart XX is applicable if:

1. The provisions of this subpart are applicable to the total of all the loading racks at a bulk gasoline terminal which deliver liquid product into gasoline tank trucks; and
2. The construction or modification of the loading rack commences after December 17, 1980.

Rocky Mountain Pipeline System's bulk truck loading terminal was originally constructed in 1965. In 1996, the loading rack was modified and is subject to Subpart XX.

3.3 Standards for Generators

The provisions of 40 CFR Part 60 Subpart IIII are applicable to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) that meet one of the following:

1. Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is 2007 or later for engines that are not fire pump engines or model year 2008 or later for engines that are fire pump engines;
2. Owners or operators of stationary CI ICE that commence construction after July 11, 2005 where the CI ICE is manufactured after April 1, 2006 and is not a fire pump engine or

manufactured as a certified National Fire Protection Association fire pump engine after July 1, 2006; or
3. Owners or operators of stationary CI ICE that modified or reconstructed their stationary CI ICE after July 11, 2005.

Rocky Mountain Pipeline System operates a 1988 Industrial Manufacturers Systems 40 kilowatt (54 horsepower) diesel generator. The unit was manufactured prior to 2005 – therefore, this subpart is not applicable.

3.4 Other Applicable New Source Performance Standards

DENR reviewed the other New Source Performance Standards and determined there are no other standards applicable to Rocky Mountain Pipeline System.

4.0 New Source Review

The Administrative Rules of South Dakota (ARSD) 74:36:10:01 notes that new source review regulations apply to areas of the state which are designated as nonattainment pursuant to the Clean Air Act for any pollutant regulated under the Clean Air Act. Rocky Mountain Pipeline System's operations are located in Rapid City, South Dakota, which is in attainment or unclassifiable for all the pollutants regulated under the Clean Air Act. Therefore, Rocky Mountain Pipeline System is not subject to new source review.

5.0 Prevention of Significant Deterioration

A prevention of significant deterioration (PSD) review applies to new major stationary sources and major modifications to existing major stationary sources in areas designated as attainment under Section 107 of the Clean Air Act for any regulated air pollutant. The following is a list of regulated air pollutants under the PSD program:

1. Total suspended particulate (PM);
2. Particulate with a diameter less than or equal to 10 microns (PM10);
3. Particulate with a diameter less than or equal to 2.5 microns (PM2.5);
4. Sulfur dioxide (SO_2);
5. Nitrogen oxides (NOx);
6. Carbon monoxide (CO);
7. Ozone – measured as volatile organic compounds (VOCs);
8. Lead;
9. Fluorides
10. Sulfuric acid mist;
11. Hydrogen sulfide;
12. Reduced sulfur compounds;
13. Total reduced sulfur; and
14. Greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.).

If the source is considered one of the 28 named PSD source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated air

pollutant, except for greenhouse gases. The major source threshold for all other sources is 250 tons per year of any regulated air pollutant, except for greenhouse gases.

One of the 28 source categories listed is "petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels." Under the PSD program petroleum refers to unrefined crude oils. The facility stores only refined petroleum fuels, and less than 300,000 barrels; therefore, the PSD threshold for this facility is 250 tons per year.

According to the Clean Air Act, once a pollutant is regulated under any part of the Act, (as was the case with greenhouse gas emissions after the motor vehicle regulations were finalized in March 2010) major new sources or major modifications are subject to the PSD program and Title V air quality operating permit program. Under the Clean Air Act, PSD and Title V air quality operating permits are required for all sources that emit a regulated air pollutant above 100 or 250 tons per year, depending on the source. This threshold, if applied to greenhouse gases, would greatly increase the number of facilities requiring a PSD review or Title V air quality operating permit. Based on administrative necessity, EPA increased these thresholds through the "Tailoring Rule."

On May 13, 2010, EPA issued the final version of the "Tailoring Rule" for greenhouse gas emissions. The major source threshold for greenhouse gases is listed below:

1. New PSD source because of a criteria air pollutant, the major source threshold for greenhouse gases is 75,000 tons per year of carbon dioxide equivalent or more;
2. New PSD source if greenhouse gas emissions are 100,000 tons per year of carbon dioxide equivalent or more;
3. For an existing PSD source because of a criteria air pollutant, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more;
4. For an existing non-PSD source that has the potential to emit 100,000 tons per year of carbon dioxide equivalent emissions or more, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more; and
5. In addition to subsection (2) and (4), a specific greenhouse gas, without calculating the carbon dioxide equivalent, also needs to emit greater than 100 or 250 tons per year, whichever is applicable, to be regulated.

5.1 Emission Factors

DENR uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, DENR relies on manufacturing data, material balance, EPA's Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1) document, the applicant's application, or other methods to determine potential air emissions.

Potential uncontrolled emissions for each applicable pollutant are calculated from the maximum design capacity listed in the application and assuming the unit operates every hour of every day of the year. Potential uncontrolled emissions are not realistic of the actual emissions and are used only to identify which air quality permit and the requirements Rocky Mountain Pipeline System must meet.

5.2 Potential Emissions from Loading Rack

Loading rack emissions occur primarily as a result of the loading of transport tanks with gasoline. The dry tanks contain vapor from the previous load. As the tank fills, these vapors are displaced and vented to the vapor collection unit. Because of the low volatility of distillate oils, negligible amounts of vapor remain in transport tanks previously filled with these products.

Volatile organic compound emissions from the loading rack are estimated based upon the gasoline throughput and a loading loss emission factor calculated using Equation 5.1, which is derived from AP-42, 5.2-4, June 2008.

Equation 5.1 – Loading Loss

$$L_L = (2.46) \left(\frac{(S)(P)(M)}{(T)} \right)$$

Where:

- L_L = loading loss, in pounds per 1000 gallons of liquid loaded;
- S = saturation factor;
- P = true vapor pressure of liquid loaded, in pounds per square inch;
- M = molecular weight of vapors, in pounds per pound-mole;
- T = temperature of liquid loaded, in Rankin degrees.

Throughput data for the loading rack was provided in the 2011 renewal application. The maximum Rocky Mountain Pipeline System is capable of processing through the loading rack is limited by the throughput limit of 626,480,000 liters of gasoline per year or 165,762,647 gallons per year which NuStar accepted to avoid the requirements in 40 CFR Part 63, Subpart R. Since it appears Rocky Mountain Pipeline System can process 100% of the throughput limit as gasoline and gasoline will result in the greatest volatile organic compound emissions, the potential to emit from the loading rack will be based on gasoline only. The parameters for Equation 5.1 for distillate oil and denatured ethanol are listed for informational purposes. This data is summarized in Table 5-1 and used in Equation 5.1 to calculate emissions.

Table 5-1 – Potential Uncontrolled Loading Rack Emissions

	Gasoline	**Distillate**	**Jet Kerosene**
Modeled Throughput (gallons per year)	165,762,647		
S = saturation factor	0.6	0.6	0.6
P = true vapor pressure (pounds per square inch)	6.3	0.0076	0.0055
M = molecular weight (pounds per pound mole)	62	130	162
T = Temperature (Rankin)	517.3	517.3	517.3
L_L = loading loss (pounds per 1000 gallons)	5.64	0.014	0.012
VOC emissions (tons per year)	**1,134**		

5.3 Controlled VOC Emissions from Loading Rack

The loading rack is equipped with a 1996 John Zink volatile organic combustion unit rated at 52 million Btus per hour and fired with natural gas. VOC emissions from the loading rack are piped

to the combustor unit. The loading rack was tested in 1997 and determined a VOC emission rate of 0.08 pounds per 1,000 gallons of gasoline loaded. Equation 5.2 will be used to calculate the controlled emissions.

Equation 5.2 – Controlled Combustion Unit Emissions

E = 0.08 pounds/1,000 gallons x Q gallons/year x 1 ton/2,000 pounds

- E = VOC emissions, in tons per year; and
- Q = Gasoline throughput limit, in gallons per year.

Inserting the gasoline throughput limit from Table 5-1 in Equation 5.2, results in controlled VOC emissions of 6.6 tons per year.

5.4 Emissions from Vapor Combustion Unit

Although the vapor combustion unit reduces volatile organic compound and hazardous air pollutant emissions, the combustion process does emit other air pollutants. The emission rate for the other criteria air pollutants from the loading rack's vapor combustor, which burns natural gas, is based on AP-42, Table 1.4-2, 7/98, and is listed below:

1. PM = 7.6 pounds per million cubic feet (0.008 pounds per million Btus);
2. PM10 = 7.6 pounds per million cubic feet (0.008 pounds per million Btus);
3. PM2.5 = 7.6 pounds per million cubic feet (0.008 pounds per million Btus);
4. SO2 = 0.6 pounds per million cubic feet (0.0006 pounds per million Btus);
5. NOx = 100 pounds per million cubic feet (0.098 pounds per million Btus);
6. CO = 84 pounds per million cubic feet (0.08 pounds per million Btus);

DENR converted the pounds per million cubic feet to pounds per million Btus by dividing the AP-42 emissions factor by 1,020 Btus per cubic feet, which DENR assumed is the heat input value for natural gas. The John Zink vapor combustion unit is rated at 52 million Btus per hour. The emissions from the vapor combustion unit are calculated using Equation 5.3 and the above emission factors.

Equation 5.3 – Potential Emissions from Vapor Combustion Unit

$$Potential\ Emissions = Emission\ Factor \frac{lbs}{MMBtu} \times 52 \frac{MMBtu}{hr} \times 8{,}760 \frac{hrs}{yr} \div 2{,}000 \frac{lbs}{ton}$$

The potential emissions from the vapor combustion unit for the other criteria air pollutants are shown in Table 5-2.

Table 5-2 – Potential Other Criteria Air Emissions from Vapor Combustion Unit

TSP/PM10/PM2.5	SO_2	NOx	CO
1.8 tons/year	0.1 tons/year	22.3 tons/year	18.2 tons/year

The emission factors for greenhouse gases while firing natural gas are from AP-42, Tables 1.4-1 and 1.4-2, July 1998 and are listed below:

1. Carbon Dioxide (CO_2) = 120,000 pounds per million cubic feet;
2. Nitrous oxide = 2.2 pounds per million cubic feet; and

3. Methane = 2.3 pounds per million cubic feet.

In the case of the greenhouse gases, the emission factors for carbon dioxide, nitrous oxide and methane need to be multiplied by 1, 310, and 21, respectively, to convert the results to carbon dioxide equivalent emissions. The emission factors need to be divided by 1,020 million Btus per million cubic feet to derive the emission factor in units of pounds per million Btus. The emission factors for greenhouse gases in pounds per million Btus are listed below:

1. Carbon Dioxide (CO2) = 117.6 pounds per million Btus;
2. Nitrous oxide = 0.002 pounds per million Btus; and
3. Methane = 0.002 pounds per million Btus.

The carbon dioxide equivalent emissions were calculated using Equation 5.3 and thereenhouse gas emission factors listed above. The potential emissions for the greenhouse gases are summarized in Table 5-3.

Table 5-3 – Vapor Combustor Unit Greenhouse Gas Potential Emissions

Pollutant	Potential Emissions	Potential Carbon Dioxide Equivalent
Carbon Dioxide	26,785 tons per year	26,785 tons per year
Methane	0.5 tons per year	11 tons per year
Nitrous Oxide	0.5 tons per year	155 tons per year
Total		**26,951 tons per year**

5.5 Potential Emissions from Storage Tanks

The storage tank emissions were calculated by the applicant using the Environmental Protection Agency's Tanks 4.09 program and are included in the application. The tank emission results are summarized in Table 5-4.

Table 5-4 – Storage Tank VOC Emissions

Unit #	Tank #	VOCs (tons per year)
2	10-53	1.5
3	10-54	1.5
4	11-1	0.2
5	12-1	2.6
6	14-1	1.6
7	17-1	0.2
8	20-27	0.3
9	24-1	2.1
10	24-2	2.1
11	24-3	0.4
12	33-1	2.4
13	33-2	3.3
14	33-3	3.4
Total		**21.6**

5.6 Potential Emissions from Generator

DENR used EPA's AP-42 3.3, 10/96 document to determine air emissions from the diesel fueled generator. The 1988 generator has a heat output of 40 kilowatts. In order to calculate potential emissions using the AP-42 emission factors, the heat input capacity of the unit was calculated based on its capacity in kilowatts listed in the application. Generators typically have an operational efficiency of 35%. Equation 5.4 converts the maximum design operating rate from kilowatts (output) to million Btus per hour (heat input) using a conversion factor of 3,413 Btus per hour-kilowatt.

Equation 5.4 – Converting Heat Output to Heat Input

$$MaximumCapacity_{heat\ input}\left[\frac{MMBtus}{hour}\right]=\left(\frac{heat\ output}{efficiency}\left[kW\right]\times 3{,}413\left[\frac{Btus}{hr-kW}\right]\times\frac{MMBtus}{10^{6}\ Btus}\right)$$

The maximum heat input for the generator is 0.4 million Btus per hour. Equation 5.5, the heat input and the emission factors from AP-42, Table 3.3-1, 10/96 in Table 5-5 were used to calculate the potential emissions from the generator. DENR used 500 hours per year of operation to determine potential emissions since Rocky Mountain Pipeline System identified the unit as an emergency generator. Rocky Mountain Pipeline System's permit will contain federally enforceable permit conditions that will restrict operation of the generator to less than 500 hours per 12-month rolling period.

Equation 5.5 – Potential Emission Calculations for Generator

$$Uncontrolled\ Emissions\left[\frac{tons}{year}\right]=\left(\frac{EmissionFactor\left[\frac{pounds}{MMBtu}\right]\times 500\left[\frac{hours}{year}\right]\times 0.4\left[\frac{MMBtus}{hour}\right]}{2{,}000\left[\frac{pounds}{tons}\right]}\right)$$

Table 5-5 – Emission Factors for Industrial Engines/Generators

Air Pollutant	Diesel Fuel Emission Factor (pounds per million Btus)
Total suspended particulate	0.31
PM10 [1]	0.31
PM 2.5 [2]	0.31
Sulfur dioxide	0.29
Nitrogen oxide	4.41
Carbon monoxide	0.95
Volatile organic compounds	0.36
Carbon dioxide	164

[1] – PM10 means particulate matter 10 microns in diameter or less; and
[2] – PM2.5 means particulate matter 2.5 microns in diameter or less.

The potential emissions from the generator are summarized in Table 5-6.

Table 5-6 – Potential Emissions from Generator (tons per year)

Unit	TSP/PM10/PM2.5	SO2	NOx	VOCs	CO	CO_2

Generator	0.03	0.03	0.44	0.04	0.10	16.40

5.7 Potential Emissions Summary

The potential emissions for the tanks, loading rack, vapor combustor and the generator are summarized in Table 5-7.

Table 5-7 – Potential Emissions (tons per year)

Source	TSP/PM10/PM2.5	SO_2	NOx	VOCs	CO	CO_2
Tanks	0.0	0.0	0.0	21.6	0.0	0.0
Vapor Combustor	1.8	0.1	22.3	6.6	18.2	26,951
Generator	0.0	0.0	0.0	0.4	0.1	16.4
Total	**2**	**0**	**22**	**29**	**18**	**26,967**

Rocky Mountain Pipeline System's potential emissions are less than the major source threshold under the PSD program based on federally enforceable permit conditions. Therefore, Rocky Mountain Pipeline System is considered a minor source under the PSD program.

6.0 National Emission Standards for Hazardous Air Pollutants

DENR reviewed 40 CFR Part 61 to determine the applicability to this facility to any of the subparts and determined there were no applicable subparts.

7.0 Maximum Achievable Control Technology Standards

The federal Maximum Control Technology Standards are applicable to both major and area sources of hazardous air pollutants. A major source of a hazardous air pollutants is a facility that has the potential to emit greater than 10 tons of a single hazardous air pollutant or 25 tons of any combination of a hazardous air pollutants. An area source is a source that is not a major source of hazardous air pollutants.

7.1 Potential HAP Emissions

DENR will utilize the baseline values for gasoline vapor phase HAP-VOC weight percentages listed in Table 11.3-2 of the EPA's January 2001 document *Gasoline Marketing (Stage I and Stage II)*, which are displayed in Table 7-1.

Table 7-1 – Gasoline Vapor Phase HAP-VOC Weight Percentages

HAP Component	Percentage of total VOC emissions
Benzene	0.9 %
Ethyl Benzene	0.1 %
Toluene	1.3 %
Xylene	0.5 %
2,2,4-Trimethylpentane	0.8 %
Hexane	1.6 %
Cumene	0.05 %

Total =	5.25 %

Based on the HAP-VOC percentages above, hexane will be the single hazardous air pollutant emitted in the greatest amount. Table 7-2 identifies the potential hazardous air pollutant emissions from the loading rack considering the vapor combustion unit. Again, gasoline will create the greatest amount of hazardous air pollutant emissions from the loading rack. In addition, Rocky Mountain Pipeline System is required to operate the vapor combustion unit at all times; therefore, the potential emissions from the loading rack will be based on using the vapor combustion unit.

Table 7-2 – Potential Loading Rack Emissions

	Gasoline
VOC emissions (tons per year)	6.6
HAP percentage	5.25%
Hexane percentage	1.6%
HAP total (tons per year)	0.35
Hexane Total (tons per year)	**0.11**

EPA's AP-42, Table 1.4-3, 7/98, for the burning of natural gas in the vapor combustor unit identifies the total hazardous air pollutant emission rate of 1.88 pounds per million cubic feet or 0.0018 pounds per million Btus. The single hazardous air pollutant emitted the greatest is hexane at 1.8 pounds per million cubic feet or 0.0018 pounds per million Btus. Using Equation 5.3 and the emission factors for hazardous air pollutants, results in potential emissions from burning natural gas of 0.40 tons per year for both total hazardous air pollutants and hexane.

The storage tank emissions were calculated by the applicant using the Environmental Protection Agency's Tanks 4.09 program and are included in the application. The tank emission results are summarized in Table 7-3.

Table 7-3 – Storage Tank HAP Emissions

Unit #	**Tank #**	**Total HAPs (tons per year)**	**Total Hexane (tons per year)**
2	10-53	**0.08**	**0.008**
3	10-54	**0.08**	**0.008**
4	11-1	**0.01**	**0.001**
5	12-1	**0.14**	**0.009**
6	14-1	**0.09**	**0.006**
7	17-1	**0.01**	**0.0**
8	20-27	**0.02**	**0.0**
9	24-1	**0.11**	**0.008**
10	24-2	**0.11**	**0.008**
11	24-3	**0.02**	**0.0**
12	33-1	**0.12**	**0.009**
13	33-2	**0.17**	**0.012**

14	33-3	**0.18**	**0.013**
	Total	**1.14**	**0.08**

The potential hazardous air pollutant emissions for the tanks, loading rack, and vapor combustor are summarized in Table 7-4.

Table 7-4 – Potential HAP Emissions

Source	Total HAPs	Hexane
Loading Rack	0.4 tons/year	0.1 tons/year
Vapor Combustor	0.4 tons/year	0.4 tons/year
Storage Tanks	1.1 tons/year	0.1 tons/year
Total =	**1.9 tons/year**	**0.6 tons/year**

Rocky Mountain Pipeline System is considered an area source for hazardous air pollutants. DENR reviewed the Maximum Achievable Control Technology Standards under 40 CFR Part 63 and determined the following may be applicable to NuStar. This is based on Rocky Mountain Pipeline System accepting operational limits which maintain actual hazardous air pollutant emissions below the major source threshold (see next section).

7.2 ARSD 74:36:08:12 - 40 CFR 63 Subpart R

In accordance with ARSD 74:36:08:12, as referenced to 40 CFR § 63.420(a), the affected source to which this subpart applies is each bulk gasoline terminal, except those bulk gasoline terminals that result in an E_T value less than 1 and the facility applies with 40 CFR § 63.420(c), (d), (e), and (f). E_T is based on Equation 7.1 and is derived from 40 CFR § 63.420(a)(1).

Equation 7.1 – Area Source Equation for Gasoline Distribution Facilities

$$E_T = CF[0.59(T_F)(1 - CE) + 0.17(T_E) + 0.08(T_{ES}) + 0.038(T_I) + 8.5 \times 10^{-6}(C) + KQ] + 0.04(OE)$$

Where:

- E_T = Emissions screening factor for bulk gasoline terminals;
- CF = 0.161 for bulk gasoline terminals that do not handle any reformulated or oxygenated gasoline containing 7.6 percent by volume or greater methyl tert-butyl ether or 1.0 if handling reformulated or oxygenated gasoline containing 7.6 percent by volume or greater methyl tert-butyl ether;
- T_F = Total number of fixed roof gasoline storage tanks without an internal floating roof;
- CE = Control efficiency of the vapor processing system on the storage vessels;
- T_E = Total number of external floating roof gasoline storage tanks with only primary seals;
- T_{ES} = Total number of external floating roof gasoline storage tanks with primary and secondary seals;
- T_I = Total number of fixed roof gasoline storage tanks with an internal floating roof;
- C = The number of pumps, valves, connectors, load arm valves, and open ended lines in gasoline service;
- K = 4.52E-6 for bulk gasoline terminals with uncontrolled loading racks (no vapor collection and processing system) or 4.5E10-9 for bulk gasoline terminals with controlled

loading racks (loading racks that have vapor collection and processing system installed on the emission stream);

- Q = Gasoline throughput limit, in liters per day; and
- OE = Total HAP from other emission sources not specified by the other parameters (miscellaneous sources).

Table 7-5 displays the values for Equation 7.1, derived from the existing permit.

Table 7-5 – Values for the Area Source Equation

CF	T_F	CE	T_E	T_{ES}	T_I	C	K	Q	OE
0.161	0	0	4	0	3	10,000	2.16E-07	1,719,123	0.685

Based on Equation 7.1 and using the parameters in Table 7-5, E_T equates to value of 0.23 and is less than 1.0. Therefore, Rocky Mountain Pipeline System is considered an area source and this MACT standard is not applicable.

7.3 ARSD 74:36:08:106 - 40 CFR 63 Subpart BBBBBB

Subpart BBBBBB applies to each area source gasoline distribution bulk terminals, bulk plants, and pipeline facilities. Rocky Mountain Pipeline System's facility in Rapid City is considered a bulk gasoline terminal because its gasoline throughput is 20,000 gallons per day or greater. Rocky Mountain Pipeline System is subject to the requirements of Subpart BBBBBB because it is a bulk gasoline terminal that is not subject to 40 CFR Part 63, Subpart R or CC.

Based on Rocky Mountain Pipeline System's gasoline throughput limit for Subpart R, Rocky Mountain Pipeline System's bulk gasoline terminal is capable of loading 250,000 gallons or more of gasoline per day. NuStar submitted its initial notification for Subpart BBBBBB on May 6, 2008. On January 10, 2011, Rocky Mountain Pipeline System submitted a semiannual report and Notification of Compliance in one report. Rocky Mountain Pipeline System indicated it was in compliance with Subpart BBBBBB.

Rocky Mountain Pipeline System commenced construction of the Rapid City facility prior to November 9, 2006 and has not modified any of the operations that would be considered reconstruction as defined in 40 CFR § 63.2. Therefore, Rocky Mountain Pipeline System's Rapid City facility is considered an existing affected source and must comply with the standards in this subpart no later than January 10, 2011.

Unit #5 (Tank #12-1) is applicable to 40 CFR Part 60 Subpart Kb. In accordance with 40 CFR § 63.11087(f), if a gasoline storage tank is subject to and complies with the control requirements in 40 CFR Part 60 Subpart Kb, the storage tank will be deemed in compliance with 40 CFR Part 63 Subpart BBBBBB.

7.4 Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ establishes national emission and operating limitations for hazardous air pollutants emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of hazardous air pollutant emissions. A stationary

RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. The generator is considered a stationary RICE engine.

According to 40 CFR § 63.6590(a)(1)(iii), a stationary RICE at an area source is existing (and subject to this subpart) if it commenced construction or reconstruction of the stationary RICE before June 12, 2006. This subpart states construction is defined as the date the generator was ordered.

Rocky Mountain Pipeline System operates a 1988 Industrial Manufacturing Systems 40 kilowatt (54 horsepower) diesel fueled generator. The unit was manufactured prior to 2006 – therefore, this subpart is applicable.

7.5 Other MACT Standards

DENR reviewed the other Maximum Achievable Control Technology Standards and determined there are no other standards applicable to Rocky Mountain Pipeline System.

8.0 State Requirements

8.1 State Particulate Emission Limits

ARSD 74:36:06:02(1) and 74:36:06:03(1), establish state emission limits for total suspended particulate matter. In addition, ARSD 74:36:12:01 establishes a visible emission limit of 20 percent opacity for each unit. The vapor combustion unit associated with Unit #1 is the only unit that emits particulate emissions.

In accordance with ARSD 74:36:06:02(1)(a), a fuel burning unit with heat input value less than 10 million Btus per hour may not exceed 0.6 pounds of particulate emissions per million Btu of heat input. Based on the heat input capacity of the vapor combustion unit, it is not applicable to this total suspended particulate matter emission limit.

In accordance with ARSD 74:36:06:02(1)(b), a fuel burning unit with a heat input equal to or greater than 10 million Btus per hour heat input may not exceed the particulate emissions rate determined by Equation 8.1.

Equation 8.1 –Particulate Emissions Limit for Fuel Burning Untis

$E_{TSP} = 0.811 \times H^{-0.131}$

Where:

- E_{TSP} = Total suspended particulate emission limit, in pounds per million Btus; and
- H = Heat input, in million Btus per hour.

The heat input "H" for the vapor combustor is listed at 52 million Btus per hour. Therefore, the total suspended particulate emission limit is 0.5 pounds per million Btus. Based on burning natural gas, the particulate matter emission rate is 0.008 pounds per million Btus which demonstrates compliance with the state's particulate limit.

8.2 State Sulfur Dioxide Emission Limits

In accordance with ARSD 74:36:06:02(2) and ARSD 74:36:06:03(2), the permitted units may not emit sulfur dioxide emissions to the ambient air in an amount greater than three pounds of sulfur dioxide per million Btus of heat input. The sulfur dioxide emission limit is applicable to Unit #1.

Unit #1 is fired with natural gas. The sulfur dioxide emission rate for natural gas is 0.0006 pounds per million Btus. Therefore, the unit is capable of meeting the sulfur dioxide emission limit.

8.3 Performance Tests

On December 12, 1997, a stack performance test was conducted on the vapor combustion unit to demonstrate compliance with the requirements in 40 CFR Part 60 Subpart XX. The volatile organic compound emission rate for gasoline was 10 milligrams per liter which was in compliance with the limit of less than 35 milligrams per liter established in 40 CFR Part 60 Subpart XX.

DENR will require another performance test to demonstrate compliance with 40 CFR Part 60 Subpart XX because the initial test is over 10 years old.

8.4 Compliance Assurance Monitoring

Compliance assurance monitoring is applicable to permit applications received on or after April 20, 1998, from major sources applying for a Title V air quality operating permit. Rocky Mountain Pipeline System's application was received after April 20, 1998. Therefore, compliance assurance monitoring is applicable to any unit that meets the following criteria:

1. The unit is subject to an emission limit or standard for the applicable regulated air pollutant;
2. The unit uses a control device to achieve compliance with any such emission limit or standard; and
3. The unit has potential uncontrolled emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

The only unit that meets all three criteria is the loading rack. The loading rack is required to meet New Source Performance Standards under 40 CFR Part 60, Subpart XX. In accordance with 40 CFR § 64.2(b)(1)(i), if the applicable standard was proposed by EPA after November 15, 1990 pursuant to section 111 or 112 of the Act, the unit is exempt from compliance assurance monitoring. This New Source Performance Standard was revised after November 15, 1990. Therefore, compliance assurance monitoring is not applicable because the monitoring, record keeping and reporting requirements are sufficient in the New Source Performance Standards to ensure compliance.

8.5 Periodic Monitoring

Periodic monitoring is required for each emission unit that is subject to an applicable

requirement at a source subject to Title V of the federal Clean Air Act. Rocky Mountain Pipeline System is required to meet state particulate, sulfur dioxide, and opacity emission limits. Opacity from the storage tanks is negligible. In addition, opacity from the vapor combustor unit associated with the loading rack is also negligible since natural gas is used as the fuel. Therefore, periodic monitoring for opacity is not required.

Rocky Mountain Pipeline System is also required to meet requirements in certain New Source Performance Standards and Maximum Achievable Control Technology Standards. Periodic monitoring for the storage tanks and loading rack shall consist of the recordkeeping and reporting requirements in the New Source Performance Standards and Maximum Achievable Control Technology Standards applicable to Rocky Mountain Pipeline System.

Based on the above findings, Rocky Mountain Pipeline will be classified as a major source under the Title V air quality permit program. A major source is one that has the potential to emit over 100 tons per year of a particular pollutant. Rocky Mountain Pipeline will be required to operate within the requirements stipulated in the following regulations:

- ARSD 74:36:05 – Operating Permits for Part 70 Sources;
- ARSD 74:36:07 – New Source Performance Standards;
- ARSD 74:36:08 – Maximum Achievable Control Technology Standards;
- ARSD 74:36:11 - Performance Testing;
- ARSD 74:36:12 - Control of Visible Emissions;
- ARSD 74:37:01 - Air Emission Fees.

9.0 Recommendation

Based on the above findings, Rocky Mountain Pipeline System is classified as a major source under the Title V air quality operating permit program. A major source is one that has the potential to emit over 100 tons per year of a particular criteria air pollutant. Rocky Mountain Pipeline System will be required to operate within the requirements stipulated in the following regulations:

1. ARSD 74:36:05 – Operating Permits for Part 70 Sources;
2. ARSD 74:36:06 – Regulated Air Pollutant Emissions;
3. ARSD 74:36:07 – New Source Performance Standards;
4. ARSD 74:36:08 – Maximum Achievable Control Technology Standards;
5. ARSD 74:36:11 – Performance Testing;
6. ARSD 74:36:12 – Control of Visible Emissions; and
7. ARSD 74:37:01 - Air Emission Fees.

Based on information DENR received in the permit application, Rocky Mountain Pipeline System's Title V air quality operating permit may be renewed. Any questions on this review should be directed to Keith Gestring, Engineer II, with the Department of Environment and Natural Resources.